

Notice of Allowability

Application No.

09/846,122

Examiner

Huyen X Vo

Applicant(s)

NEMOTO, KAZUO

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/5/2005.
2. ☒ The allowed claim(s) is/are 1-36.
3. ☒ The drawings filed on 30 April 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Richard Hinson on 6/21/2005. The application has been amended as follows:

Claims 1, 29, and 30 have been amended as follow:

1. A speech recognition system comprising:
correspondence information, said correspondence information storing a
correspondence between recognized words and a plurality of speech element arrays,
each array comprising associated rendering information for expressing pronunciation of
said recognized words, said associated rendering information comprising at least one
set of alternate renderings of a recognized word;
said speech recognition system recognizing a recognizable word from a received
user spoken utterance by comparing a speech element array generated from said user
spoken utterance with said plurality of speech element arrays in said correspondence
information;

wherein, in a dialog of a single person occurring within a certain period of time, said generated speech element array corresponds to one of said plurality of speech element arrays, a pronunciation prediction probability corresponding to said one of said plurality of speech element arrays being reduced during said period of time by uniquely associating with said person one alternate rendering from the set of alternate renderings and excluding other alternate renderings from further consideration during said period of time.

29. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

receiving a first user spoken utterance and generating a first speech element array from said first user spoken utterance;

searching correspondence information, said correspondence information comprising a correspondence between recognizable words and a plurality of speech element arrays that each comprise associated rendering information for expressing pronunciation of said recognized words, said associated rendering information comprising at least one set of alternate renderings of a recognized word;

generating a recognized word by comparing said first speech element array and said plurality of speech element arrays in said correspondence information; and

lowering a pronunciation prediction probability of one of said plurality of speech element arrays which differs from said first speech element array by uniquely

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associating with said person one alternate rendering from the set of alternate renderings and excluding other alternate renderings from further consideration during a period of time during which occurs a dialog of a single person, wherein said one of said plurality of speech element arrays is made to correspond to said first speech element array.

30. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

receiving a first user spoken utterance and generating a first speech element array from said first user spoken utterance;

searching correspondence information, said correspondence information associating recognizable words with a plurality of speech element arrays that each comprise associated rendering information for expressing pronunciation of said recognized words, said associated rendering information comprising at least one set of alternate renderings of a recognized word;

generating a first recognized word by comparing said first speech element array and said plurality of speech element arrays in said correspondence information;

lowering a pronunciation prediction probability of one of said plurality of speech element arrays which differs from said first speech element array by uniquely associating with said person one alternate rendering from the set of alternate renderings and excluding other alternate renderings from further consideration during a period of

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time during which occurs a dialog of a single person, wherein said one of said plurality of speech element arrays is made to correspond to said first speech element array;

receiving a second user spoken utterance and generating a second speech element array from said second user spoken utterance;

searching said correspondence information comprising said lowered pronunciation prediction probability; and

generating a second recognized word by comparing said second speech element array and said plurality of speech element arrays in said correspondence information.

Allowable Subject Matter

2. Claims 1-36 are allowed over prior art of record. The following is an examiner's statement of reasons for allowance: Rigazio et al. (US 6182039) disclose a speech recognizer incorporating a language model that reduces the number of acoustic pattern matching sequences that must be performed by the recognizer. The language model is based on knowledge of a pre-defined set of syntactically defined content and includes a data structure that organizes the content according to acoustic confusability. Nitta (US 5133012) discloses a speech recognition system in that a plurality of candidate phonetic segments extracted from the input speech signal are passed through transition networks prepared for the respective words so as to obtain a score by weighting/averaging the long-term strategic scores by taking consideration of statistic distribution of the similarities or distances of phonetic segments and the short-term strategic scores by taking consideration of the environment of the phonetic segments.

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Zadrozny et al. (US 5937385, issued to the same assignee) discloses a method and apparatus for creating speech recognition grammars constrained by counter examples so that a large list of grammars is pruned down to a smaller list. This helps reduce speech recognition error. Rigazio et al., Nitta, and Zadrozny et al. fail to specifically disclose the step of taking advantage of user's tendency to pronounce the same reading consistently throughout a conversation to exclude other alternative readings from speech recognition grammars in order to lower speech recognition error. For example, readings "zero" and "oh" are two reading alternatives for number "0". A user pronounces "zero" in a conversation, that user has a tendency to pronounce "zero" consistently during that conversation (*paragraph 4 in the summary section*). Therefore, by excluding the alternative reading "oh" from the speech recognition grammar, speech recognition error would be reduced. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify Rigazio et al., Nitta, and/or Zadrozny et al. to obtain the claimed invention. Therefore, claims 15-36 are allowed over prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

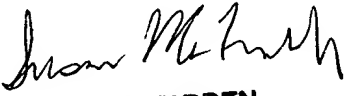
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HXV

6/21/2005


SUSAN MCFADDEN
PRIMARY EXAMINER